THAT WHICH IS CLAIMED IS:

1. A process for separating colour bodies and/or asphalthenic contaminants from a hydrocarbon mixture using a membrane having a feed side and a permeate side, by contacting the hydrocarbon mixture with the feed side of the membrane, wherein between the feed side and permeate side of the membrane a pressure difference is applied, thereby passing part of the hydrocarbon mixture from the feed side to the permeate side and obtaining at the permeate side of the membrane a hydrocarbon permeate having a reduced content of colour bodies and/or asphalthenic contaminants, and by removing the hydrocarbon permeate from the permeate side of the membrane, wherein during selected time intervals the removal of hydrocarbon permeate from the permeate side of the membrane is stopped so that the pressure difference over the membrane is temporarily substantially lowered.

2. A process according to claim 1, wherein the membrane comprises a top layer made of a dense membrane and a support layer made of a porous membrane.

3. A process according to claim 2, wherein the dense membrane is made from a polysiloxane such as a poly(di-methyl siloxane).

4. A process according to claim 3, wherein the pressure difference across the membrane is lowered by at least 20%.

5. A process according to claim 4, wherein the pressure difference across the membrane during separation is between 10 and 30 bar.

6. A process according to claim 5, wherein the pressure difference is lowered to 0 bar.

7. A process according to claim 6, wherein time periods of between 5 and 480 minutes of continuous separation across the membrane alternate with time intervals of between 1 and 60 minutes at which the removal of permeate is stopped.

8. A process according to claim 7, wherein the time interval at which the permeate removal is stopped is below 30 minutes.

9. A process according to claim 8, wherein the removal of hydrocarbon permeate from the permeate side is stopped at regular intervals.

10. A process according to claim 9, wherein the hydrocarbon permeate is removed from the permeate side of the membrane through a conduit including a permeate valve, which valve is closed during the selected time intervals so as to stop the removal of permeate.

11. A process according to claim 10, wherein the membrane is operated at a temperature of above 40 °C.

12. A process according to claim 10, wherein the membrane is operated at a temperature of above 65 °C.

13. A process according to claim 12, wherein the hydrocarbon mixture has an initial boiling point greater than 20 °C and a 80% recovery point of less than 600 °C, determined by ASTM D2887.

14. A process according to claim 13, wherein the hydrocarbon mixture has an ASTM D1500 colour index of above 2.

15. A process according to claim 14, wherein the hydrocarbon mixture is a contaminated natural gas condensate or a contaminated refinery stream.

16. A process according to claim 15, wherein the hydrocarbon mixture is a liquid hydrocarbon feed from which light olefins are to be produced by thermal cracking, wherein the membrane forms part of a membrane separation unit in which the hydrocarbon

permeate is removed from the permeate side of the membrane, and wherein a retentate is removed from the retentate side of the membrane, and wherein the process further comprises the steps of:

(a) supplying the permeate to the inlet of a cracking furnace, allowing the permeate to crack in the coils of the cracking furnace in the presence of steam at elevated temperature and removing from the cracking furnace a cracked stream which is enriched in light olefins;

(b) quenching the cracked stream;

(c) supplying the cooled cracked stream to a fractionation column;

(d) removing the retentate, preferably by supplying it to the fractionation column or to a crude distiller; and

(e) removing from the top of the fractionation column a gaseous stream, from the side of the fractionation column a side stream of fuel oil components and from the bottom of the fractionation column a bottom stream.